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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,348

04/03/2006

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EXAMINER

HAILEY, PATRICIA L

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

06/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,348	Applicant(s) FURUYA, MASAHIRO	
	Examiner PATRICIA L. HAILEY	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on February 13, 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/03/06; 02/13/07</u> . | 6) <input type="checkbox"/> Other: _____ |

Applicants' Preliminary Amendment, filed on April 3, 2006, has been made of record and entered. Claims 3-10 and 12 have been amended to eliminate multiple claim dependency, and new claims 13-30 have been added. No claims have been canceled.

Claims 1-30 are now pending in this application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9 and 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent No. 11-043770 (hereinafter "JP '770", also Applicants' submitted art).

JP '770 discloses the formation of a vitreous carbon coating on the surface of titanium metal, wherein the surface of titanium metal is polished to form a titanium oxide coating layer (considered to read upon **claims 3-5 and 13-15**), and subjecting said layer to plasma heat treatment in an atmosphere of 400°C to 1100°C containing gaseous hydrocarbon. See the Abstract of JP '770 (considered to read upon **claims 1 and 2**).

The titanium metal can be alloyed or unalloyed. See paragraph [0003] of JP '770, as well as paragraphs [0017] and [0027], which depicts Ti-15V-3aluminum-3Cr-3Sn as an exemplary alloy substrate (considered to read upon **claims 6 and 16**) in the

formation of a layer having 2% carbon therein (paragraph [0031]; considered to read upon **claims 9 and 19**).

Examples of the hydrocarbon gas employed include hydrocarbons of the ethylene series (considered equivalent to the phrase “unsaturated hydrocarbon”), as well as acetylene. See paragraph [0024] of JP ‘770. Although JP ‘770 does not disclose any percentage ranges for the hydrocarbon gases, selection of one gas is considered to read upon the limitations “30% or more by volume” and “50% or more by volume” as recited in **claims 7, 8, 17, and 18**, as the gas would be present in 100% by volume.

In view of these teachings, JP ‘770 anticipates claims 1-9 and 13-19.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 10-12 and 20-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 11-043770 (hereinafter "JP '770", also Applicants' submitted art).

JP '770 is relied upon for its teachings in the above 102(b) rejection. Although JP '770 does not explicitly disclose the properties and characteristics recited in claims 10-12 and 20-30 (e.g., Vickers hardness, functioning as a visible light responding photocatalyst, etc.), it would have been obvious to one of ordinary skill in the art at the time the invention was made that the coated substrate produced by the method of JP '770 would exhibit these properties and characteristics, absent the showing of convincing evidence to the contrary, as JP '770 teaches a method reading upon that instantly claimed.

"Similar processes can reasonably be expected to yield products which inherently have the same properties." In re Spada, 15 U.S.P.Q. 2d 1655 (Fed. Cir. 1990).

Priority

6. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Applicants' Priority Document was filed on April 3, 2006.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICIA L. HAILEY whose telephone number is (571)272-1369. The examiner can normally be reached on Mondays-Fridays, from 7:00 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICIA L. HAILEY//P. L. H./
Examiner, Art Unit 1793
June 6, 2008